

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA,

- v. -

LAWRENCE RAY,

Defendant.

No. 20 Cr. 110 (LJL)

**MOTION TO EXCLUDE THE GOVERNMENT'S
PROFFERED EXPERT WITNESSES**

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Lawrence Ray respectfully submits this motion to exclude the government's proffered expert witnesses from testifying at trial. In the alternative, the Court should hold a *Daubert* hearing at which the government must establish the admissibility of each its proffered expert opinions.

ARGUMENT

Pursuant to Federal Rule of Evidence 702, the Court acts as a "gatekeeper" for expert testimony to ensure that such testimony "both rests on a reliable foundation and is relevant to the task at hand." *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993); *United States v. Cruz*, 363 F.3d 187, 192 (2d Cir. 2004).

Before admitting proffered expert testimony, the Court must conclude not only that such testimony is reliable, but also that it "fits" the facts of the case and will thereby assist the jury in understanding the evidence or some factual issue in dispute. *See Daubert*, 509 U.S. at 591; Fed. R. Evid. 702. "[E]ven if the methodology used by the expert is considered to be reliable, the expert's testimony will nevertheless fail to meet the 'fit' requirement and should be excluded if the data relied upon by the expert is materially different from the data relevant to the facts of the case." *In re Omeprazole Pat. Litig.*, 490 F. Supp. 2d 381, 401 (S.D.N.Y. 2007) (citing *Raskin v. Wyatt Co.*, 125 F.3d 55, 67–68 (2d Cir. 1997)).

This "fit"/helpfulness requirement is "akin to the relevance requirement of Rule 401, which is applicable to all proffered evidence, but goes beyond mere relevance because it also requires expert testimony to have a valid connection to the pertinent inquiry." *In re Rezulin Prod. Liab. Litig.*, 309 F. Supp. 2d 531, 540 (S.D.N.Y. 2004) (quoting Jack B. Weinstein & Margaret A. Berger, 4 WEINSTEIN'S FEDERAL EVIDENCE § 702.03[1] (Joseph M. McLaughlin ed., 2d ed.1997) (alterations omitted)). As the Supreme Court put simply, "[e]xpert testimony which

does not relate to any issue in the case is not relevant and, ergo, non-helpful.” *Daubert*, 509 U.S. at 591 (quotations omitted).

In addition, under Rule 703, if the facts or data relied upon by an expert are otherwise inadmissible, the expert may not disclose them to the jury unless the Court determines that their “their probative value in helping the jury evaluate the opinion substantially outweighs their prejudicial effect.” Fed. R. Evid. 703; *see also United States v. Long*, 917 F.2d 691, 702 (2d Cir. 1990) (holding that trial court erred in permitting expert testimony that was marginally relevant, not directly related to the case, substantially more prejudicial than probative). Rule 703 “provides a presumption against disclosure to the jury of information used as the basis of an expert’s opinion and not admissible for any substantive purpose, when that information is offered by the proponent of the expert.” Fed. R. Evid. 703, 2000 Advisory Committee Note. Expert testimony that merely recites inadmissible hearsay is improper. *See, e.g., Plourde v. Gladstone*, 190 F. Supp. 2d 708, 720–21 (D. Vt. 2002) (finding expert opinion inadmissible when it “amounts to nothing more than inadmissible ‘hearsay in disguise’ under Rule 703”), *aff’d* 69 F. App’x 485, 487 (2d Cir. 2003); *see also* Charles A. Wright & Victor J. Gold, 29 FED. PRAC. & PROC. EVID. § 6273 (2d ed. April 2021 Update).

Expert testimony must also satisfy Rule 403 and may be excluded if its “probative value is substantially outweighed by a danger of . . . unfair prejudice, confusing the issues, [or] misleading the jury.” Fed. R. Evid. 403; *see United States v. Dukagjini*, 326 F.3d 45, 54 (2d Cir. 2003) (“Even if the testimony is admissible under Rule 702, it still must pass muster under Rule 403”). As the Second Circuit has cautioned, “[t]he very breadth of the discretion according trial judges in admitting [expert opinions] under Rules 702 and 403 should cause them to give the

matter more, rather than less, scrutiny. A trial judge should . . . weigh carefully the risk of prejudice.” *Nimely v. City of New York*, 414 F. 3d 381, 397 (2d Cir. 2005) (quotations omitted).

I. The Testimony of the Government’s Historical Cell Site Expert, Andrew Petersohn, Should Be Excluded or Limited.

The government’s expert disclosure states that it plans to call Andrew Petersohn, a licensed professional engineer, to testify about the “geographical area or range within which the wireless devices assigned [three specific numbers] were used on certain dates in 2018 and 2019.” Gov. Expert Ltr., Ex. A at 4. This notice was supplemented by email on December 3, 2021, stating that Mr. Petersohn would testify that “the devices in the ‘device’ column used cell sites in close geographic and temporal proximity” and that two of the devices “most frequently accessed cell sites located near Piscataway, New Jersey.” Gov. Supplemental Notice, Ex. B.

As explained below, this witness should be excluded because the government’s notice is deficient and the government has not met its burden of establishing admissibility under *Daubert* or Rule 702.

A. *The expert notice for Andrew Petersohn is insufficient to show his qualifications, his opinions, or the bases and reasons for those opinions.*

Federal Rule of Criminal Procedure 16(a)(1)(G) requires the government to provide a “written summary of [expert] testimony that the government intends to use” that “must describe the witness’s opinions, the bases and reasons for those opinions, and the witness’s qualifications.” The initial expert notice provided by the government relating to Mr. Petersohn and his proposed testimony about historical cell site location data is insufficient because it met none of those criteria. The supplemental notice provides additional information, saying that Mr. Petersohn will say that the cell phones in question “used cell sites in close geographic and temporal proximity” and that two of the numbers “most frequently accessed cell sites located

‘near’ Piscataway, New Jersey.” Gov. Supplemental Notice, Ex. B. This notice, however, still does not state where Mr. Petersohn plans to say the phones were located and with what level of approximation.

1. The expert notice does not describe the witness’s opinions.

The government’s notice does not meaningfully explain what the government plans to assert the cell site records demonstrate, *i.e.*, what locations Mr. Petersohn will testify the cell site location data shows on the relevant dates and times, and with what level of approximation, as required by Rule 16(a)(1)(G). Although Mr. Petersohn is “preparing draft maps reflecting the geographical area or range within which the Devices were used,” the government does not plan to disclose those maps to the defense until December 15, 2021. Gov. Expert Ltr., Ex. A at 4. Thus, the defense does not now know what geographical area or range Mr. Petersohn plans to say the devices were within.

Without the maps and further information about Mr. Petersohn’s conclusions, the government’s notice merely informs the defense of the “general subject matters to be covered,” and does not “identify what opinion the expert w[ill] offer on those subjects.” *United States v. White*, 492 F.3d 380, 407 (6th Cir. 2007) (quotations omitted). This is inadequate. *See id.*; *United States v. Duvall*, 272 F.3d 825, 828 (7th Cir. 2001) (“[The] government’s notice did not adequately summarize or describe [the expert’s] trial testimony. The Rule requires a summary of the expected testimony, not a list of topics.”); *United States v. Valentin*, No. 14 Cr. 55 (VLB), 2016 WL 1211304, at *2 (D. Conn. Mar. 25, 2016) (finding expert notice insufficient when “the letter does not identify the substance of his opinions” and ordering additional disclosures).

Instead of describing the witness’s opinions, the expert notice mostly states the general topics that Mr. Petersohn will testify about. For example, the notice states that Mr. Petersohn will

testify that cellular service provider's networks "consist[] of cell sites," "with the goal of ensuring sufficient geographical coverage and capacity to all users." Gov. Expert Ltr., Ex. A at 4. The notice further indicates that Mr. Petersohn will testify that in "densely populated urban environments," cell providers place "multiple cell sites . . . intended to service a relatively small geographical area . . . depending on the surrounding geography and topography, the proximity of nearby sites, and the network layouts for AT&T and Verizon in Manhattan and New Jersey in about 2018 and 2019." *Id.* The notice does not provide any further information about the "network layouts" or state what opinion Mr. Petersohn might have about those layouts that relates to Mr. Ray's case.

Mr. Petersohn also plans to testify that "analyzing cell site location data . . . is a reliable way to approximate the geographical area or range within which a wireless device was likely located at the time of the connection to the cell site." *Id.* The notice does not explain any method or test Mr. Petersohn plans to use to "approximate the geographical area," how "near" the phones were to Piscataway, or what his opinion is about the definition of "approximate" and "near" in this context: Does it mean feet? Blocks? Miles? Does he plan to testify that the cell site data allows him to approximate geographical areas at particular times, such as by testifying that the phones were in North Carolina, rather than New Jersey? Or does he plan to say that the data can show that the phones were on a particular block in Manhattan? As explained below, *see infra* Part I.B, historical cell site analysis can sometimes show that an individual is within one to five kilometers of a cell tower, or show where an individual likely was not. But historical cell site evidence is not reliable to show more specific locations. Thus, further information about Mr. Petersohn's conclusions about what the data shows here are crucial.

The notice further states that cellphones are “designed to meet universal industry protocols by which phones connect to the cell site that provides the strongest and clearest signal, which is often (but not always) the nearest site.” Gov. Expert Ltr., Ex. A at 4. Again, the notice does not explain Mr. Petersohn’s opinion with respect to whether the phones in this case connected to the nearest cell site towers or not, or how he reached his conclusions. It does not attach the “universal industry protocols” or explain if those protocols apply differently in “densely populated” environments such as Manhattan than they do in New Jersey.

This notice is insufficient to allow the defense to challenge this expert, or cross-examine him. The Court set clear deadlines for the government’s disclosure of expert notice in this case so that there would be time for the defense to challenge those experts and prepare rebuttal experts. *See United States v. Kaufman*, No. 19 Cr. 504 (LAK), 2021 WL 4084523, at *19 (S.D.N.Y. Sept. 8, 2021) (noting that the “Advisory Committee notes to Rule 16 explain that [Rule 16’s] disclosure requirement is intended to minimize surprise that often results from unexpected expert testimony, reduce the need for continuances, and to provide the opponent with a fair opportunity to test the merit of the expert’s testimony through focused cross-examination”). The government should not be permitted to flout those deadlines by failing to describe Mr. Petersohn’s actual opinions in its notice and stating that it will do so by December 15. Instead, this expert should be excluded.

2. The expert notice does not explain the bases and reasons for any opinions the expert will opine about.

The expert notice also does not explain how Mr. Petersohn plans to determine the “geographical area or range within which the devices were used.” Gov. Expert Ltr., Ex. A at 4. It does not provide “any records or scientific literature” he relied upon. It references “the network layouts for AT&T and Verizon in Manhattan and New Jersey in about 2018 and 2019,” but does

not provide the underlying data used. It states that he has “experience” including “drive tests and performance analysis tests,” but does not state whether he did either type of test in this case or provide the results of any testing. It does not indicate whether he performed any validation techniques. *See United States v. Frazier*, No. 15 Cr. 44 (GMN), 2016 WL 4994956, at *2 (D. Nev. Sept. 16, 2016) (admitting expert testimony in part because “experts use[d] a ‘drive test’ as ‘field experiments’ for approximating the location of cell phones”). There is no record of his documentation of any of the topography, how he took into account the weather of the day, that he determined the communications traffic in the area, or looked at the cell phone company’s maintenance logs about any service changes or outages during the relevant times. It is not even clear if Mr. Petersohn intends to base his conclusions solely on voice calls, or whether he also plans to rely on text or data usage.

The actual determination of which cell tower a phone connects to is complex and hinges on a multitude of factors that are not memorialized in the call detail records. Federal courts have recognized that these factors can affect what tower a cell phone call connects to and should be taken into account by any expert. For example, the Second Circuit has written, “While the proximity of the user is a significant factor in determining the cell tower with which the cell phone connects, other factors also play a role, including structural features of the tower and the phone, as well as the geography and topography of the surrounding environment.” *United States v. Natal*, 849 F.3d 530, 534 (2d Cir. 2017) (quotations omitted). Similarly, in *United States v. Medley*, the court advised a “cautionary approach,” to historical cell site location data, explaining that “there are factors that limit the reliability of any location testimony that should be accounted for. These include (1) whether the expert was aware of and took into consideration the power and characteristics of the cell tower with which the defendant’s phone connected; (2) the direction in

which its antennae connected to were facing; (3) and whether the agent performed any tests of the towers' area of signal coverage.” 312 F. Supp. 3d 493, 500 (D. Md. 2018) (internal citations omitted). The *Medley* court concluded that, “[f]ailure to [take those factors into account] may render the opinion of the expert unreliable.” *Id.*

The Sixth Circuit has been particularly critical of the FBI's failure to take these numerous factors into account: “While cellphones are designed to connect to the tower with the strongest signal, that tower might not actually be the closest because factors such as weather, obstructions, and network traffic can cause a call to connect to a tower farther away. FBI historical cell-site tracking does not account for these factors.” *United States v. Reynolds*, 626 F. App'x 610, 615 (6th Cir. 2015) (finding no error because expert only testified about areas where the phone *was* *not* located as opposed to areas where the phone *was* located).

Here, the defense cannot effectively challenge Mr. Petersohn's expert opinion because the defense does not know what that opinion is and how he determined it. For this reason too, his testimony should be excluded. “Even if the disclosure provides a sufficient summary of any opinions to be offered by the witness, it may be excluded” if there is “no attempt at all to describe the bases and reasons for those opinions as required.” *United States v. Mahaffy*, No. 05 Cr. 613 (ILG), 2007 WL 1213738, at *2 (E.D.N.Y. Apr. 24, 2007) (excluding expert testimony).

3. The expert notice does not establish Mr. Petersohn's qualifications to testify as an expert relating to historical cell site data.

The notice states in relevant part that Mr. Petersohn is an engineer, who has worked for “multiple cellular service providers,” and has “experience designing and testing cellular networks, including through drive tests and performance analysis tests to determine coverage areas of cell sites.” Gov. Expert Ltr., Ex. A at 3. His testimony would be “based on his education, training, and experience; his review of the geography, topography, and environmental

and man-made factors that might affect the functioning of cell sites in Manhattan and New Jersey.” *Id.*

His *curriculum vitae*, however, which is attached as Appendix C to the government’s letter, is exceedingly barebones. *See* Gov. Expert Ltr., Ex. A at App’x C. It does not show that he has any experience related to the “functioning of cell sites in Manhattan and New Jersey,” or any of the other topics he plans to testify about. This CV does not describe any relevant education, training, or experience in historical cell site analysis. Indeed, the disclosed CV is only one-page long, with a good portion of the page consumed with a list of his engineering license numbers in various states. The entire section titled “Related Experience” reads:

Principal Engineer, dBm Engineering, P.C., Fairview Village, PA
January 2006 – Present
Senior Engineer II, Wireless Facilities Incorporated, King of Prussia, PA
January 2004 – January 2006
Radio Frequency Engineer, Nextel Communications, Bensalem, PA
October 2001 – January 2004
Wireless Consultant, Millennium Engineering, P.C., Conshohocken, PA
May 2001 – October 2001
Member of Technical Staff, Wireless Microsystems, Reading, PA
June 2000 – May 2001
Systems Engineer, Raytheon N&MIS, Portsmouth, RI
July 1999 – June 2000
Radio Frequency Design Co-Op, Verizon Wireless, Plymouth Meeting, PA
October 1997 – April, 1999

His CV mentions nothing about the field of historical cell site location analysis. It does not state that Mr. Petersohn has completed any professional or continuing education courses related to historical cell site analysis; written any papers; or given any lectures in the field. For the past 15 years, he has worked at dBm Engineering, P.C. No description is provided for this job. The webpage for this company states Mr. Petersohn is the “president and founder” of the

company. *See* <https://www.dbmeng.com/> (“About Us”). He is also the only person listed as “staff” of the company. *See* <https://www.dbmeng.com/> (“Staff”).

Additionally, nothing in this disclosure supports that Mr. Petersohn has specific experience with historical cell site location analysis in Manhattan and New Jersey, the locations referenced by the government as relevant. To the contrary, his company and Mr. Petersohn are based in Pennsylvania and all of Mr. Petersohn’s disclosed education and work experience, aside from a brief stint in Rhode Island in the 1990s, also took place in Pennsylvania.

Mr. Petersohn’s simple CV does not show qualifications in the area of historical cell site location information analysis. For this reason too, his testimony should be excluded.

4. The government should provide additional discovery relating to the “technical issue” with the call detail records.

Additionally, the government provided the defense a letter from Verizon disclosing a “technical issue with one of [Verizon’s] vendor’s call-routing technologies” relating to the Call Detail Records (“CDRs”) for “Voice over Long-Term Evolution (“VoLTE”) calls.” Verizon VoLTE Disclosure Letter, Ex. C. This letter stated that this issue affected some unknown percentage of reported cell site locations, apparently misreporting the “terminating” cell site location (the cell site location the phone connected to at the end of the call) “where they should have reported the “originating” cell site location (the cell site location the phone connected to at the beginning of the call). *Id.* Verizon asserted that “available data shows that at least 90 percent of all VoLTE calls made since January 2020 (thus even before the pandemic) had the same originating and terminating cell site locations.” *Id.* It added that it “believe[d]” that the “percentage was likely as high” from 2017–2019, but offered no explanation as to how it reached this conclusion without looking at the underlying data. *Id.* The letter did not report any data about the percentage of calls that had the same originating and terminating cell site location for

the relevant years in Mr. Ray’s case, 2018 and 2019, or any data for the relevant geographical areas in Mr. Ray’s case.

This letter goes on to say that “there is [] no reliable way to determine whether the originating cell site location information provided on VoLTE CDRs from this time period represents the originating location or the terminating location.” *Id.*¹ This letter also cautions that “cell site location information helps to approximate a device’s location but is not as precise as GPS data.” *Id.*

This “issue” “applied only to some, not all VoLTE” records for four years, “sometime” from March 1, 2017 through March 17, 2021. *Id.* The span of years includes all of the dates relevant to Mr. Ray’s case.

The government has not disclosed how Verizon determined that this problem existed or how it determined that the problem was limited to terminating cell site location sites and not originating cell site location sites. Given this, the Court should order the government to produce additional discovery or subpoena Verizon and AT&T for additional records.² The requested documents include any identified “call-routing technologies” problems or other Call Detail Record issues, including:

- all documentation about the “call-routing technologies” issue including,
 - dated technical documentation of the error discoveries and record logs,
 - technical documentation of the CDR creation, data flow, and recording procedures, including any notes, illustrations, information or IP packet flow diagrams, error rate calculations, audit sheet spreadsheets, planning

¹ Although Verizon suggests other types of data that were not changed by this technical problem, such as Round Trip Time (RTT) data, that type of data was not produced.

² It is reasonably likely that AT&T records would be affected by the same technical issue as Verizon because many call-routing technologies are marketed by vendors to multiple mobile network operators.

documents, procedure diagrams, configuration diagrams, context view diagrams,

- or any other documentation that assists an understanding of the extent of this technical issue and the impact on CDR entry recording.
- All radio survey data collected by employees or contractors during drive or walk testing in “connected mode” while performing mobile originated and mobile terminated voice calls, text messages, and Internet data access usage for all base stations identified in the CDR/CSLI evidence and including all neighboring base stations.

Additionally, it should order the government to provide information about whether and/or how Mr. Petersohn factored in this multi-year technical error into his analysis.

* * *

At the least, the Court should order immediate disclosure of additional information to allow the defense to adequately challenge Mr. Petersohn’s proposed opinions. *See, e.g., United States v. Cantoni*, 18 Cr. 562, Dkt 47 (E.D.N.Y. March 19, 2019) (ordering the government to “forthwith” supply a “description of the expert’s methods and analysis” related to historical cell-site location information expert’s testimony); *Valentin*, 2016 WL 1211304, at *2.

B. The government has not met its burden of proving the expert’s conclusions—which have not yet been disclosed—are reliable.³

Federal Rule of Evidence 702 provides that a witness who is qualified as an expert may testify in the form of an opinion when

(1) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (2) the testimony is based on sufficient facts or data; (3) the testimony is the product of reliable principles and methods; and (4) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

³ The defense respectfully requests the opportunity to supplement this motion once the government discloses the substance of Mr. Petersohn’s opinions and how he reached them.

In *Daubert*, the Supreme Court held that Rule 702 requires the trial judge to assume the role of “gatekeeper” with the task of ensuring “that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” 509 U.S. at 597. This Court must make a preliminary assessment of “whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts at issue.” *Id.* at 592–93.

To guide the assessment of the reliability of an expert’s methodology, the Supreme Court has set out several factors to consider, including:

- (i) whether the theory is based on scientific or other specialized knowledge that has been or can be tested;
- (ii) whether the theory has been subjected to peer review;
- (iii) the known or potential rate of error and the existence of standards controlling the theory’s operation; and
- (iv) the extent to which the theory is generally accepted in the relevant community.

Id. at 593–94.

However, the *Daubert* factors are “meant to be helpful, not definitive,” and the trial court retains the discretion to determine how to evaluate an expert’s reliability on a case-by-case basis. *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 151–52 (1999) (extending *Daubert*’s holding on scientific expert testimony to all expert testimony). The principal consideration is whether the evidence is sufficiently reliable for presentation to the jury through expert testimony.

The proponent of the testimony bears the burden of proving that the proffered testimony meets these requirements. *See United States v. Williams*, 506 F.3d 151, 160 (2d Cir. 2007); *see also* Fed. R. Evid. 702, 2000 Advisory Committee Notes (“[T]he admissibility of all expert testimony is governed by the principles of Rule 104(a). Under that Rule, the proponent has the

burden of establishing that the pertinent admissibility requirements are met by a preponderance of the evidence.”).

Over the past decade, law enforcement’s use of historical cell site location analysis has come under increasing scrutiny by courts, scholars, and commentators.⁴ This is because, although courts have generally admitted expert testimony relating to historical cell site location analysis, the accuracy and reliability of the methodology have not been scientifically verified. *See generally* Aaron Blank, *The Limitations and Admissibility of Using Historical Cellular Site Data to Track the Location of a Cellular Phone*, 18 Rich. J.L. & Tech. 3 (2011); *see also* *Williams*, 506 F.3d at 162 (“[E]xpert testimony long assumed reliable before Rule 702 must nonetheless be subject to the careful examination that *Daubert* and *Kumho Tire* require.”).

⁴ *See, e.g., United States v. Hill*, 818 F.3d 289, 299 (7th Cir. 2016) (cautioning the government “not to present historical cell-site evidence without clearly indicating the level of precision—or imprecision—with which that particular evidence pinpoints a person’s location at a given time.”); *United States v. Reynolds*, 626 F. App’x 610, 618 (6th Cir. 2015) (finding no abuse of discretion in admitting historical cell site analysis where agent’s “technique thereby avoided the disputed assumption that each call connected to the nearest tower or originated from within a specific cell sector”); *Nieves*, 2021 WL 1535338; *United States v. Evans*, 892 F. Supp. 2d 949, 956 (N.D. Ill. 2012) (rejecting agent’s novel and “wholly untested” theory of granulization but admitting traditional historical cell site analysis); Victoria Saxe, Note, *Junk Evidence: A Call to Scrutinize Historical Cell Site Location Evidence*, 19 U.N.H. L. Rev. 133 (2020); Thomas J. Kirkham, Note, *Rejecting Historical Cell Site Location Information as Unreliable Under Daubert and Rule 702*, 50 U. Tol. L. Rev. 361, 381 (2019); Paul W. Grimm, *Admissibility of Historical Cell Phone Location Evidence*, 44 No. 4 Litigation 53, 56 (2018); John B. Minor, *Forensic Cell Site Analysis: A Validation & Error Mitigation Methodology*, 12 J. Digit. Forensics, Security, & L. 33 (2017); Tom Jackman, *Experts say law enforcement’s use of cellphone records can be inaccurate*, Wash. Post (June 27, 2014) (“The use of cellphone records to place suspects at or near crime scenes is coming under attack in courts nationwide, challenging an established practice by federal and local law enforcement that has helped lead to thousands of convictions.”); Douglass Starr, *What Your Cell Phone Can’t Tell the Police*, New Yorker (June 26, 2014) (“[Y]ears of prosecutions and plea bargains have been based on a misunderstanding of how cell networks operate.”).

As set out below, the government has failed to meet its burden with respect to Mr. Petersohn’s proposed expert testimony. The myriad unknowns about historical cell site location information include: whether the underlying data is itself accurate; what external factors affect the signal strength of the surrounding cell sites; the precise coverage range of the relevant towers at the time; and how often a cellphone does not connect to the closest tower. Because these unknowns substantially undermine the reliability of the proposed analysis, it cannot and should not be admitted at trial.

1. There are many unknowns about historical cell site location information.

By way of background, cellphones send and receive radio signals between phones’ internal antennas and cell towers, also known as cell sites. *See* Larry E. Daniel & Lars E. Daniel, *Digital Forensic For Legal Professionals: Understanding Digital Evidence From The Warrant To The Courtroom* 229–30 (R. Maxwell & S. Spielman eds., 2012). Cell towers are designed to cover certain geographic areas, but coverage area varies, and range can be affected by external factors—for instance, during an influx of users into the coverage area, the range may decrease to accommodate the increase. *Id.* at 226, 233. Cell tower coverage areas are designed to overlap to optimize coverage and ensure smooth handoffs between coverage areas. Accordingly, a cellphone is usually within the coverage area of multiple cell towers. *Id.* at 229–30.

“It is a common misconception that a cellphone connects to the cell tower physically closest to it when registering to a cellular network.” Saxe, *supra*, at 139; *see also* Blank, *supra*, at 3, 6, 16. Cellular networks are designed to connect a phone receiving or sending a call or text to the tower with the strongest signal. Daniel & Daniel, *supra*, at 229–30. Though proximity to the cell tower is important, a host of factors affect the signal strength, such as the number of

available cell towers, topography, weather, population density, and the technical characteristics of the cell tower. Blank, *supra*, at 6.

When a cellphone sends or receives a text message or phone call and connects with a cell tower, the registration is processed by the carrier, and the carrier records the information for customer billing purposes. Daniel & Daniel, *supra* at 163, 225. This information is maintained purely for billing purposes; historical cell site information, unlike GPS, was not designed to track a user's location. See Kirkham, *supra*, at 377.

When a party requests information for a particular phone number from the carrier, the information is produced in call detail records (CDRs), which typically show the date and time of the call, the duration of the call, the calling number, the called number, the carrier identifier, the billable time of the call, and the tower locations that connected to the call (either one cell site location if there was no handoff or two cell site locations tracking the beginning and end of the call).

As explained in Part I.A, *supra*, the government's inadequate notice has failed to reveal what method of analysis Mr. Petersohn plans to use to determine the geographical location of the three phones mentioned in the notice. As a result, this motion can only be based on what the defense understands about how law enforcement analysts typically assess location based on historical cell site data. Typically, law enforcement analysts use CDR data to create maps to plot a user's cell site data and the location of relevant cell towers. Some analysts rely solely on carrier records to identify and locate cell towers, while others attempt to verify the location of cell towers using Google Maps. Analysts sometimes attempt to depict the general coverage area of a cell site using a "V" shape. Here, the government's notice lacks such information, leaving the

defense unable to challenge Mr. Petersohn's conclusions. For this reason, his testimony should be excluded.

2. None of the *Daubert* factors have been satisfied.

i. Historical cell site analysis is based on untested assumptions and techniques.

First, typical analysis of historical cell site data assumes the carriers' underlying CDR data is 100% accurate. This is incorrect. Mr. Ray's case emphasizes this point. Here, after providing cell site data in response to a government subpoena, Verizon, one of the relevant carriers, wrote to the government explaining that it had an undescribed "technical issue" for a span of four years that caused errors in the location data in the CDRs for some calls. *See Verizon VoLTE Disclosure Letter*, Ex. C.

It is also known that CDR records are sometimes "lost," meaning "the CDR(s) could not be placed into the destination file due to irrecoverable errors." John B. Minor, *Forensic Cell Site Analysis: Mobile Network Operator Evidence Integrity Maintenance Research*, 14 J. Digit. Forensics, Security & L. 59, 69 (2019). Cell carriers, however, do not provide any information on when or how often the "lost CDR indicator" is applied or when cell tower information is inaccurate. *See id.* at 169.

Second, it is erroneous to assume that cell tower location data is always accurate. Indeed, according to the only peer-reviewed study of which the defense is aware assessing the error rate relating to historical cell site location analysis, carrier records "erroneously identified more than 20 cell site locations within a radius of 2 miles." Minor, *A Validation & Error Mitigation Methodology*, *supra*, at 35. A review by the Denmark National Police uncovered significant errors in carrier cell tower location records:

[T]he telecom providers' mast lists have not been correct and continuously updated, and [] there have therefore been errors in the telecommunications providers' historical lists of the telemasters' locations. It could be, for example, because a telecommunications company has set up temporary masts due to repairs [of] existing masts, or because there is a festival in an area and that therefore needs extra masts as there are more people gathered in one place.

Louise Dalsgaard & Emma Toft, *Understand the Mistakes in the Telecommunications Scandal: Telephone was in Copenhagen and Frederikshavn at the Same Time*, Danish Broad. Corp. (Aug. 31, 2019), <https://www.dr.dk/nyheder/indland/forstaa-fejlene-i-teleskandalen-telefon-var-i-koebenhavn-og-frederikshavn-paa-samme>.

Third, historical cell site analysis generally makes faulty assumptions about coverage area. Carriers' CDR and tower data provide no information about the strength of a given tower's signal. To test the range of a cell tower, carriers conduct forensic radio surveys, or "drive" tests, in which an engineer drives through the area while operating mobile receiver equipment to measure the signal strength in the area. *See Saxe, supra*, at 144. There is no indication in the government's notice whether this type of drive test was conducted here. In any event, "given all the factors that affect signal strength and the unlikelihood that the weather and cellular network conditions during the test drive are identical to those when the cellular activity actually occurred, the reliability of this methodology is disputed." *Id.*; Erin Murphy, *The New Forensics: Criminal Justice, False Certainty, and the Second Generation of Scientific Evidence*, 95 Cal. L. Rev. 721, 772–73 (2007) ("[V]erifying that a cell-site report accurately identified the location of a phone at a particular time requires verifying all the precursor data, including the accuracy of the tower location, clarity of signal, lack of interference with signal reception, and correspondence to actual physical terrain; this is obviously difficult to scrutinize.").

Finally, the fundamental assumption underlying historical cell site analysis is that cellphones generally connect to the cell tower that is closest to the phone. *See Reynolds*, 626 F. App’x at 618 (noting that “[t]he ‘one-location’ tracking approach assumes that the cellphone connected to the closest tower because that tower is most likely to produce the strongest signal” and finding that the district court did not abuse its discretion in allowing that testimony because the agent’s process “avoided the disputed assumption that each call connected to the nearest tower”). What little data there is disproves the assumption in a significant number of cases, especially in Manhattan, with its high density of both buildings and cellphone users. *See also* Jackman, *supra* (“There are so many different factors [involved] that two cellular devices stationed next to each other making phone calls at the same moment could still get different towers I’ve seen proof that two individuals, subscribed to the same cellular provider, standing next to each other—on surveillance—can still get different towers.” (quoting Jeff Fischbach, forensic expert)).

Topography, geography, weather, population density, and cell tower outages often impact signal strength. In one study, after taking steps to account for these factors, the final map of the coverage area was modified in approximately 40% of the cases and “in 6% of the cases, use of the validation and error mitigation process resulted in a modified final mapping analysis that impacted the outcome of the case in terms of the verdict of guilt or innocence in criminal cases or damages awarded in civil litigation.” Minor, A Validation & Error Mitigation Methodology, *supra*, at 45–46.

At best, historical cell site analysis can sometimes show that an individual is within one to five kilometers of a cell tower (if it is a small macro cell), as well as where an individual likely was not. *See Reynolds*, 626 F. App’x at 618 (finding no abuse of discretion in admitting

historical cell site analysis because agent concluded that “the cell-site data did not show that [defendant] was absent from the home” and “[i]mportantly, [the agent] declined to draw a conclusion about [defendant’s] location on the basis of cell-site data alone”); *see also* Br. for the United States-Appellee, *Carpenter v. United States*, 138 S. Ct. 2206, at 11, 24 (2018) (the government argued that “[i]nferences about location drawn from cell site information are far less precise than GPS data and do not permit a detailed reconstruction of a person’s movements” and noting that historical cell site analysis was “as much as 12,500 times less accurate than GPS data”). As Verizon cautions, “cell site location information helps to approximate a device’s location but is not as precise as GPS data.” Verizon VoLTE Disclosure Letter, Ex. C.

Thus, it matters whether Mr. Petersohn plans to testify that the cell phones were in a particular state—*i.e.*, that they were in North Carolina rather than New Jersey—or whether he plans to testify that the cell phones were in a much more specific location, say at a particular building in Manhattan. Without knowing his conclusions, it is impossible to correctly assess whether they are reliable.

Other federal agencies have recognized the dangers in relying on cell tower evidence as a proxy for location. Indeed, the Federal Communications Commission changed its 911 regulations from determining location based on cell site data to using GPS data. *See* Michael Cherry et al., *Cell Tower Junk Science*, 95 *Judicature* 151 (2012). This is because, when the 911 system relied on the location of the cell tower to which an emergency caller pinged, responders often went to the wrong place, in some instances arriving at some location miles away from the caller’s actual location. *See* Saxe, *supra*, at 149–50; Location-Based Routing for Wireless 911 Calls, 33 *FCC Rcd.* 3238, 1 (Mar. 23, 2018). In one instance, responders were routed to Philadelphia, Pennsylvania after a woman suffered a head trauma in Burlington County, New

Jersey, twenty to thirty minutes away from Philadelphia. *See* Kirkham, *supra*, 50 U. Tol. L. Rev. at 381.

As one commentator has explained, “[a] methodology that has been determined by independent government agencies not to be able to stake a caller’s life on should not now be accepted as reliable enough to risk a defendant’s liberty.” Cherry et al., *supra*, at 152. Historical cell-site evidence is not sufficiently reliable to be admitted against a defendant in a criminal trial.

ii. Historical cell site analysis has not been subject to peer review or publication.

To our knowledge, there has only been one peer-reviewed study about the validity of historical cell site mapping as used by law enforcement. *See United States v. Allums*, No. 08 Cr. 30 (TS), 2009 WL 806748, at *2 (D. Utah Mar. 24, 2009) (explaining that the analyst was unable to “identify any peer-review process that the methodology has undergone, nor the rates of error”). As detailed above, this study looked at factors, such as weather and topography, that can affect a site’s signal strength. *See* Minor, A Validation & Error Mitigation Methodology, *supra* (published in the peer-reviewed Journal of Digital Forensics, Security and Law). Based on a review of approximately 100 criminal and civil cases in which an analyst created mapping exhibits, the study concluded: (1) there were validation and error mitigation techniques that analysts could take to improve the accuracy of historical cell tower mapping; (2) only 11% of analysts attempted to validate the geographic locations of cell sites, 7% conducted drive tests to estimate signal strength, and the remaining analysts conducted no validation techniques; and (3) “[u]se of the methodology in the same group of criminal and civil cases resulted in a modified final mapping analysis in approximately 40% of the cases” and impacted the final outcome of the case in 6% of the cases. *Id.* at 35–46.

iii. *Historical cell site analysis has no known error rate.*

Further, there is no known error rate of historical cell site analysis to meet the third *Daubert* factor. *See* 509 U.S. at 593–94. “Lack of a known error rate [] prevents the jury from assessing the proper level of deference to accord the expert’s conclusions.” *United States v. Frabizio*, 445 F. Supp. 2d 152, 166 (D. Mass.), *decision clarified on reconsideration*, 463 F. Supp. 2d 111 (D. Mass. 2006) (granting defendant’s *Daubert* motion and excluding expert’s testimony in part because the “error rate is unknown and therefore does not support a finding of reliability”). Absent an error rate, a court cannot determine whether an expert’s experiences constitute meaningful expertise. *Id.*

It is unknown how often law enforcement analysts produce an incorrect final mapping analysis. With respect to CDRs and cell tower location information, there is likely an ascertainable error rate, but it has not yet been estimated. Cell carriers do not provide any information on when or how often cell tower information is inaccurate. *See* Minor, Mobile Network Operator Evidence, *supra*, at 169. We are aware of no efforts by analysts to make even a general calculation about the error rates for these underlying records. There has also been no attempt to calculate the error rate for analysts’ estimates about the coverage range of cell sites. *See* Jackman, *supra* (according to one forensic analyst, it is impossible “for anyone to reliably determine the particular coverage area of a cell-tower antenna *after the fact* based solely on historical cell-tower location data or call-detail records” (emphasis added)); *see also id.* (another expert explaining that “[w]e have never seen courtroom evidence . . . that authenticates an antenna’s range”).

There is also no known “error rate” for the fundamental assumption that cellphones generally connect to the closest tower. It is not even properly an “error” when a cellphone does

not connect to the closest tower because that is a normal part of how cellular networks are designed to work.

Because there is no known error rate in this field, it is impossible to guess how often Mr. Petersohn's conclusions are correct, rendering his opinions unreliable. *See Frabizio*, 445 F. Supp. 2d at 165–66. For this reason, Mr. Petersohn should be excluded as an expert.

iv. Historical cell site analysis is not generally accepted by the relevant scientific community.

Although courts have credited the government's introduction of expert cell site testimony, historical cell site analysis has not been generally accepted by the relevant scientific community. Courts that credited the methodology "relied primarily on other federal courts' acceptance of historical cell-site tracking to conclude that the technique is reliable." *Reynolds*, 626 F. App'x at 616. Such reliance, however, is circular and should be avoided. *See Grimm*, *supra*, at 56 ("[J]udges should be cautious about admitting this evidence in the face of an evidentiary challenge just because so many courts in the past have done so, often without any real consideration of whether it meets the requirements of Rule 702.").

United States v. Schaffer, one of the original cases finding that historical cell site analysis was reliable (without appearing to apply the *Daubert* factors), found it persuasive that the "FBI had been successful at least 1000 times." 439 F. App'x 344, 347 (5th Cir. 2011); *see also Allums*, 2009 WL 806748, at *2 ("The methodology . . . has general acceptance in the area of law enforcement."). But it remains unclear what the court meant by "successful." *See Reynolds*, 626 F. App'x at 616 (referring to the claim relied upon in *Schaffer* and finding that "[t]his claim appears to be precisely the sort of 'ipse dixit of the expert' testimony that should raise a gatekeeper's suspicion"). Without knowing the import of the FBI's "success" rate, this claim is meaningless.

3. At the least, a *Daubert* hearing is required.

Rule 104(c) of the Federal Rules of Evidence requires the Court to conduct an evidentiary hearing on whether a witness is qualified or evidence is admissible when “justice so requires.” The Second Circuit has stated that *Daubert* hearings are “highly desirable to enable the parties to present expert evidence and to test credibility through cross examination.” *Borawick v. Shay*, 68 F.3d 597, 608 (2d Cir. 1995); *see also Dover v. British Airways, PLC*, No 12 Civ. 5567 (RJD), 2017 WL 2480898, at *7 (E.D.N.Y. June 5, 2017). A hearing is particularly necessary where, as here, the government has failed to provide sufficient information about its expert’s conclusions and how they reached them.

Should the Court decline to exclude Mr. Petersohn’s testimony entirely, the Court should exercise its authority to circumscribe Mr. Petersohn’s testimony. *See, e.g., United States v. Shipp*, 422 F. Supp. 3d 762, 783 (E.D.N.Y. 2019) (allowing ballistics expert to testify, but limiting what expert could say “because of the concerns raised by the lack of a known error rate” and “lack of general acceptance in the scientific community”); *United States v. White*, No. 17 Cr. 611 (RWS), 2018 WL 4565140, at *3 (S.D.N.Y. Sept. 24, 2018) (holding that expert “may not testify to any specific degree of certainty as to his conclusion that there is a ballistics match”). In particular, the Court should prevent Mr. Petersohn from saying things that are inaccurate, such as “that phones connect to the cell site that provides the strongest and clearest signal, which is often (but not always) the nearest site.” Gov. Expert Ltr., Ex. A at 4.

C. The government’s proffered historical cell site evidence should be excluded as irrelevant, or, in the alternative, because it is more prejudicial than probative.

The government’s cell site evidence fails to satisfy the threshold of relevance. Because a cell phone does not necessarily connect to the nearest tower with any scientific level of accuracy or reliability, evidence that a particular cell phone connected with a particular tower makes no

“fact that is of consequence to the determination of the action more probable or less probable” and therefore fails to satisfy the threshold relevance inquiry and should not be submitted to the jury for its consideration. Fed. R. Evid. 401 (“[r]elevant evidence” is “evidence having any tendency to make the existence of any fact that is of consequence to the determination of action more probable or less probable than it would be without the evidence”); *see also Daubert*, 509 U.S. at 591 (“Rule 702 further requires that the evidence or testimony assist the trier of fact to understand the evidence or to determine a fact in issue. This condition goes primarily to relevance.”).

Additionally, the Court should exclude an expert’s testimony under Rule 403 if “its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.” Expert testimony risks violating Rule 403 because it can be powerful and misleading, and thus difficult to evaluate. *See Daubert*, 509 U.S. at 595; *e.g.*, *United States v. Nieves*, No. 19 Cr. 354 (JSR), 2021 WL 1535338, at *1 (S.D.N.Y. Apr. 18, 2021) (excluding testimony from cell site analyst under Rule 403). We respectfully reserve the right to expand on this Rule 403 argument once we know more about the nature of Mr. Petersohn’s conclusions.

* * *

The Court should, therefore, conclude that the government’s proffered historical cell site evidence is inadmissible. In the alternative, the Court should hold a *Daubert* hearing at which the government must establish the admissibility of this evidence.

II. The Testimony of the Government’s “Coercive Control” Expert, Dawn Hughes, Should Be Excluded or Limited.

The government has disclosed that it intends to call Dawn Hughes, Ph.D., as an expert witness at trial. *See* Gov. Expert Ltr., Ex. A at 2–3. According to the government, Dr. Hughes is a clinical and forensic psychologist and purported expert “on sexual abuse, interpersonal violence, victimization, and traumatic stress,” whose testimony will be based on her experience in “clinical and forensic practice assessing victimization, her trauma-based education and training, and an extensive study of the empirical data and social science literature on sexual assault, interpersonal violence, victimization, coercive control, and trauma.” *Id.* at 2. Dr. Hughes “is expected to testify about coercive control as a tactic of victimization and a strategy to gain dominance across a spectrum of relationships,” including by offering opinions:

- that “the overarching dynamic of victimization is an abuse of power and control where the harasser or perpetrator engages in self-centered behavior to satisfy his own goals and desires regardless of the needs, wants, and well-being of the target or victim”;
- “the common elements of abuse and coercive control in victimization situations”; and
- that “[t]he function of all these abusive behaviors is to indoctrinate victims into a belief system that benefits the perpetrator, maintains compliance, creates dependency, assures non-disclosure of abuse, preserves dominance, and creates psychological entrapment and cognitive confusion.” *Id.* at 3.

Dr. Hughes has not evaluated any of the alleged victims in this case and does not intend to offer any testimony regarding any specific alleged victim. *Id.*

The Court should exclude Dr. Hughes’s proffered testimony for several independent reasons. First, the government has not disclosed the “empirical data and social science literature” on which Dr. Hughes’s testimony is based. Second, Dr. Hughes is not qualified to opine on the mental states, motivations, intentions, or subjective mental processes of persons accused of interpersonal violence. Third, Dr. Hughes’s proffered testimony, in large part, is not based on reliable data or any expert methodology. Fourth, significant portions of her proffered testimony

do not satisfy the helpfulness requirement of Rule 702 because they do not fit the facts of this case. Fifth, permitting this testimony would improperly intrude upon the jury's functions of making credibility determinations and deciding the ultimate issues in this case. Finally, any limited probative value of this testimony is substantially outweighed by the risk of juror confusion and undue prejudice to Mr. Ray.

For these reasons, Dr. Hughes's proposed expert testimony should be excluded. If the Court does not exclude this testimony in its entirety, it should convene a *Daubert* hearing to evaluate Dr. Hughes's proffered testimony.

A. The government has not identified the bases for Dr. Hughes's opinions.

Although the government disclosed that Dr. Hughes' proposed testimony will be based on her "extensive study of the empirical data and social science literature on sexual assault, interpersonal violence, victimization, coercive control, and trauma," Gov. Expert Ltr., Ex. A at 2, the government has not disclosed or identified any of these purported data or any piece of the social science literature on which Dr. Hughes will base her opinions. *See* Fed. R. Crim. P. 16(a)(1)(G). The defense has requested such material and noted that the government has disclosed precisely these data and studies in connection with Dr. Hughes's testimony in other matters. *See, e.g., United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y.), Dkt. No. 641 at 7 (government submission stating that "[a]s part of its disclosure the government also included an expert report Dr. Hughes offered in another case in December 2017, which includes Dr. Hughes's qualifications and the bases for the opinions she will offer here. This report identifies numerous studies supporting her opinions [on the topics she offered opinions on]."). To date, the government has not provided or identified these materials.⁵

⁵ *See* Rule 16.1 Affidavit, filed herewith.

Absent an identification of the “empirical data and social science literature” on which Dr. Hughes’s opinions are purportedly based, Mr. Ray will not be provided “a fair opportunity to test the merit of [Dr. Hughes’s] testimony through focused cross-examination.” *Kaufman*, 2021 WL 4084523, at *19. Accordingly, the Court should order the government to identify or produce the studies and social science literature on which Dr. Hughes will base her opinions, and preclude her testimony if such materials are not provided.

B. Dr. Hughes is not qualified to offer opinions on perpetrators of interpersonal violence, and such opinions are not reliable.

A threshold issue is, of course, whether a witness “is qualified as an expert” to render a proposed opinion. *See Nimely*, 414 F.3d at 396. Determining whether a witness has the requisite expertise to offer the specific opinions proffered is a key question the trial court must answer in performing its “gatekeeping” role regarding expert testimony. *See Kumho Tire*, 526 U.S. at 150 (holding that “the gatekeeping inquiry must be tied to the facts of a particular case”); *Amorgianos v. Nat’l R.R. Corp.*, 303 F.3d 256, 266 (2d Cir. 2002) (noting that the trial court’s gatekeeping analysis under Rule 702 and *Daubert* “will necessarily vary from case to case”). As the Second Circuit has emphasized, just “because a witness qualifies as an expert with respect to certain matters or areas of knowledge, it by no means follows that he or she is qualified to express expert opinions as to other fields.” *Nimely*, 414 F.3d at 399 n.13. The trial court “retains the screening function traditionally played by trial judges, and must determine whether the expert is qualified to testify in the specific or specialized area at issue.” *N.K. by Bruestle-Kumra v. Abbott Labs.*, No. 14 Civ. 4875 (RER), 2017 WL 2241507, at *3 (E.D.N.Y. May 22, 2017) (quotations and alterations omitted).

In the performing this “gatekeeping” function with respect to proffered medical and similar expert opinion testimony, courts in the Second Circuit routinely exclude witnesses who—

while generally qualified and perhaps even experts in closely related fields—are not qualified to offer the specific opinions proffered. *See, e.g., id.* at *3 (excluding proffered expert who “[w]hile undoubtedly qualified as an expert in general pediatric medicine,” did not have experience qualifying her to testify on question of causation because she did not have training in the specific area of medicine at issue, had not prescribed the medication at issue, had not conducted research on the medical question at issue, and had not reviewed the relevant medical literature); *id.* at *4 (excluding proffered teratology and toxicology expert who, while qualified in the field of inquiry, had never evaluated children—the specific question at issue at trial); *Estate of Jaquez v. City of New York*, 104 F. Supp. 3d 414, 429 (S.D.N.Y. 2015) (excluding medical doctor whose “expertise lies in emergency medicine and not in the areas in which he seeks to opine,” and noting that “[t]he mere possession of a medical degree does not qualify one to be an expert in all medically related fields”); *In re Fosamax Prods. Liab. Litig.*, 807 F. Supp. 2d 168, 183 (S.D.N.Y.2011) (precluding physician expert from offering testimony that was not based on “sufficient facts beyond his own clinical experience [because] such testimony could mislead the jury”); *Tatum v. City of New York*, No. 06 Civ. 4290 (PGG), 2009 WL 1748044, at *4 (S.D.N.Y. June 19, 2009). The Court should similarly exclude Dr. Hughes’s opinions about sexual and interpersonal assault perpetrators because she is not qualified to provide such testimony.

The government has disclosed that Dr. Hughes is expected to testify about a broad range of topics that focus on the subjective motivations, thought processes, and mental states of alleged perpetrators of sexual and other interpersonal violence. For example, Dr. Hughes intends to offer opinions on the use of “coercive control” by perpetrators as a “tactic” and “strategy to gain dominance.” Gov. Expert Ltr., Ex. A at 3. She also intends to testify about sexual and interpersonal violence perpetrators’ “self-centered behavior,” which they purportedly engage in

“to satisfy [their] own goals and desires regardless of the needs, wants, and well-being of the target or victim.” *Id.* In addition, Dr. Hughes anticipates offering an opinion as to why sexual and interpersonal violence perpetrators engage in such conduct: “The function of all these abusive behaviors is to indoctrinate victims into a belief system that benefits the perpetrator, maintains compliance, creates dependency, assures non-disclosure of abuse, preserves dominance, and creates psychological entrapment and cognitive confusion.” *Id.* By her own admission, Dr. Hughes does not have the expertise necessary to offer these opinions.

As Judge Garaufis recently observed, Dr. Hughes’s “extensive academic and clinical experience appears focused on *victims* of sexual abuse, not *perpetrators*.” *United States v. Ranieri*, No. 18 Cr. 204 (NGG), 2019 WL 2212639, at *7 (E.D.N.Y. May 22, 2019). A review of Dr. Hughes’s *curriculum vitae* and prior testimony confirm this fact. Dr. Hughes’s disclosed research experience, publications, professional presentations, and public speeches reflect experience with the effects, impacts, and outcomes related to sexual abuse victims and survivors. *See* Gov. Expert Ltr., Ex. A at App’x B. But these materials do not reflect any research, social science data, or studies of the *perpetrators* of sexual or interpersonal violence—let alone research, data, or studies specifically addressing the subjective mindset of such persons, including their motivations, thought processes, intentions, or mental states when engaged in such conduct.

Nor in her clinical practice (another purported basis for Dr. Hughes’s expert opinions in this matter) does Dr. Hughes treat or see persons accused of sexual violence. *See* Tr. 3745:15–17, *United States v. Ranieri*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. No. 780 (“Q. In your practice, do you currently treat or see anyone who has been accused of sexual assault? A. I do not. I do not treat offenders.”); *see also id.* at 3746:6–8. While Dr. Hughes has testified on

behalf of criminal defendants who alleged that they were victims of abuse and/or acted in self-defense, she has never testified on behalf of someone accused of interpersonal violence. *See id.* 3744:25–3745:3; Professional Website of Dr. Hughes, Ex. D (“Dr. Hughes has served as an expert witness in numerous criminal cases involving battered women who have assaulted or killed their abusive partners in self-defense and of abuse victims who have acted out violently against their perpetrators.”); *cf. Pension Comm. of Univ. of Montreal Pension Plan v. Banc of Am. Sec., LLC*, 691 F. Supp. 2d 448, 473 n.148 (S.D.N.Y.2010) (“If the witness is relying solely or primarily on experience, then [she] must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts.” (quoting Fed. R. Evid. 702 Advisory Committee Note)).

Dr. Hughes’s lack of requisite qualifications to opine on the subjective mindsets of alleged perpetrators of sexual and interpersonal violence exacerbates the already problematic nature of her proffered testimony. As courts in this District have repeatedly held, “opinions concerning state of mind are an inappropriate topic for expert opinion.” *Bd. of Trustees of AFTRA Ret. Fund v. JPMorgan Chase Bank, N.A.*, No. 09 Civ. 3020 (SAS), 2011 WL 6288415, at *8 (S.D.N.Y. Dec. 15, 2011); *e.g., Highland Capital Mgmt., L.P. v. Schneider*, 379 F. Supp. 2d 461, 469 (S.D.N.Y.2005) (excluding testimony where proffered expert offered “his opinion as to the state of mind and knowledge possessed by defendants and non-parties to this action”); *Rezulin Prods.*, 309 F. Supp. 2d at 546 (excluding proffered expert testimony concerning “intent, motives or state of mind”).

In the absence of any research or clinical experience with alleged perpetrators of sexual and interpersonal violence, and absent any identification of Dr. Hughes’s substantial familiarity with scientific literature, research, and data regarding the subjective mindsets of such people, Dr.

Hughes is not qualified to opine about the thought processes, motivations, and mental states of accused perpetrators. *See United States v. Tin Yat Chin*, 371 F.3d 31, 40 (2d Cir. 2004) (“To determine whether a witness qualifies as an expert, courts compare the area in which the witness has superior knowledge, education, experience, or skill *with the subject matter of the proffered testimony*.” (emphasis added)). Moreover, any such opinions would not be based on “scientific, technical, or specialized knowledge” of such persons, would not be based on sufficient facts or data, and would not be the product of reliable principles and methods. *See* Fed. R. Evid. 702. The government has recognized as much in previous matters, withdrawing Dr. Hughes’s proffered opinions on why “perpetrators often use ‘grooming’ techniques,” rather than subject Dr. Hughes’s opinions to the scrutiny of a *Daubert* hearing. *See United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y.), Dkt. No. 685.

Because Dr. Hughes’s proffered opinions regarding sexual and interpersonal violence perpetrators not satisfy Rule 702 or *Daubert*, they must be excluded from the upcoming trial. To the extent the Court does not preclude such testimony, it should be evaluated in a pre-trial *Daubert* hearing.

C. Dr. Hughes’s opinions are not based on sufficient facts or data, are not the product of reliable principles or methods, and would improperly transmit hearsay to the jury.

Significant, integral portions of Dr. Hughes’s proffered opinions are not based on sufficient facts or data, or grounded in any reliable methodology. Much of Dr. Hughes’s anticipated testimony is nothing more than a means of transmitting otherwise inadmissible hearsay to the jury. Other opinions are not premised on a reliable foundation. These opinions must be excluded.

In *Daubert*, the Supreme Court held that the Federal Rules of Evidence “assign to the trial judge the task of ensuring that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” 509 U.S. at 597. The trial court must conclude that the “proffered testimony has a sufficiently ‘reliable foundation’ to permit it to be considered.” *Campbell ex rel. Campbell v. Metro. Prop. & Cas. Ins. Co.*, 239 F.3d 179, 184 (2d Cir. 2001) (quoting *Daubert*, 509 U.S. at 597). In performing this inquiry, the Court should “should consider the indicia of reliability identified in Rule 702, namely, (1) that the testimony is grounded on sufficient facts or data; (2) that the testimony ‘is the product of reliable principles and methods’; and (3) that ‘the witness has applied the principles and methods reliably to the facts of the case.’” *Amorgianos*, 303 F.3d at 265 (quoting Fed. R. Evid. 702).

1. Dr. Hughes’s opinions based on her clinical clients should be excluded.

Experts may rely upon otherwise inadmissible facts or data in reaching their conclusions “[i]f experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject.” Fed. R. Evid. 703. In particular, an expert may rely on hearsay if that is reasonable within her field *and* if she is applying expertise or a reliable methodology to that hearsay to reach her own expert opinion. *See Dukagjini*, 326 F.3d at 58. Here, however, Dr. Hughes’s proffered opinions rely in large part on unverified anecdotes from her clinical clients, which have not been subjected to any reliable principles or methodology. Gov. Expert Ltr., Ex. A at 2 (disclosing that “Dr. Hughes’ testimony is based her 25 years of clinical” practice). Such opinions must be excluded.

As Dr. Hughes has testified, there is a fundamental difference between her two primary roles as a clinical psychologist and a forensic psychologist. In her role as a forensic psychologist, Dr. Hughes performs an extensive analysis, relying on a wide range of materials and

investigation, to arrive at an objective evaluation of a person, which can be relied upon in a court of law. As she has testified, a “standard forensic methodology requires looking at multiple sources of information,” including medical records and other documents regarding prior psychological functioning; “psychological testing,” that is “a systematic way” to evaluate symptoms and disorders; and a “structured clinical interview.” Tr. 170:8–25, *Quinones v. Miller*, No. 15 Civ. 1109 (NRB) (S.D.N.Y. May 9, 2017), Dkt. 124. In a forensic setting, Dr. Hughes employs a battery of scientifically validated tests to evaluate trauma survivors. *Id.* 174:3–179:14. As Dr. Hughes has noted, in a forensic evaluation, “the level of scrutiny is heightened,” “there is a standard of objectivity and neutrality,” and there is a testing of multiple hypotheses, including malingering.” Dawn M. Hughes, Ph. D, ABPP, “Ethical Dilemmas and Professional Considerations for Working with the Adult Survivor of Sexual Abuse: Forensic Psychology,” Slide 9 (citing Greenberg, S.A. & Shuman, D.W., “Irreconcilable Conflict between Therapeutic and Forensic Roles,” 28 PROF. PSYCHOLOGY: RESEARCH & PRAC. 50–57 (1997)). Forensic Psychology, Ex. D.

In her clinical work, however, Dr. Hughes does not subject the stories she hears from clients to such scrutiny because the goal of clinical practice is “much different.” As Dr. Hughes has explained, a forensic evaluation is “much more comprehensive, much more complex, in that I am looking at a variety of sources and witness reports and police reports and medical records and witness statements, and doing psychological testing and talking to people. So it’s a much more comprehensive evaluation than in a clinical practice.” Tr. 3751:4–11, *United States v. Ranieri*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. 780. In her clinical practice, Dr. Hughes, for example, does not go to third parties to verify the information clients provide about their alleged victimization. *Id.* 3756:5–10. She also does not perform scientifically validated

psychological testing on all of her clinical clients. *Id.* 3757:3–7. Dr. Hughes also does not scrutinize the stories her clinical clients tell her because that is not integral to treatment. *Id.* 3757:25–3758:4. In short, Dr. Hughes does not subject the stories and anecdotes she hears from her clinical clients to any reliable expert methodology or analysis. *Cf.* Fed. R. Evid. 702(b), (c).

Yet, as disclosed by the government and as Dr. Hughes has previously testified, her subject matter opinion testimony is based in large part on the unverified stories her individual clients have told her. *See* Tr. 3756:11–16, *United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. 780 (“Q. And you have used your interactions with individuals presenting to you with their stories of interpersonal issues to give opinions today, correct? A. To sort of elucidate some of the facts and to talk more sort of real about some of the things that we see in our clinical practices, yes.”).

To appreciate the difference between relying on *ad hoc*, unverified anecdotes and stories from clinical clients and applying an expert methodology to validated psychotherapeutic data in the field of social science, it is useful to consider one of Dr. Hughes’s published articles. In an article entitled, “Abuse Characteristics Among Childhood Sexual Abuse Survivors in Therapy: A Gender Comparison,” Dr. Hughes and her co-authors collected data from hundreds of participants in outpatient psychotherapy, using a structured clinical interview with established reliability, focused on areas of inquiry identified in previous literature and studies as relevant. *See* 27 CHILD ABUSE & NEGLECT 1005, 1007–08 (1998). These data were then evaluated using a statistical analysis that had previously been assessed for reliability, accounting for numerous categorical variables. *Id.* The study relied on hearsay, in that it surveyed the study participants and incorporated their answers into its analysis. But it applied a methodology to that hearsay: it used a validated social science instrument to measure for certain specifically controlled data and

applied a statistical analysis to try to find correlations and reach some conclusion. The methodology may be debatable, but there at least *was* a methodology about which Dr. Hughes might testify consistent with Rules 702 and 703.⁶

In contrast, at Mr. Ray’s trial, Dr. Hughes will rely upon and repeat statements she has heard from her clients about why some alleged victims of interpersonal violence felt or acted a certain way in idiosyncratic circumstances. This is improper. *See, e.g., Dukagjini*, 326 F.3d at 59 (ruling testimony inadmissible where expert was repeating hearsay evidence “without applying any expertise”); *see also Marvel Characters, Inc. v. Kirby*, 726 F.3d 119, 136 (2d Cir. 2013); *United States v. Mejia*, 545 F.3d 179, 197 (2d Cir. 2008).

Not only are these untested, unverified anecdotes an improper basis for a purported expert opinion, Dr. Hughes’s recitation of them to the jury would violate the prohibition on transmitting inadmissible hearsay to the jury. Dr. Hughes’s broad opinions are not just informed by these unverified stories; Dr. Hughes frequently recounts these hearsay anecdotes to juries as part of her testimony. *See, e.g.,* Tr. 3705:18–3706:1, *United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. 780 (testifying about why “patients who I have in treatment” have difficulty discussing the facts relating to their assaults); *id.* 3712:4–14 (testifying about why clients of her clinical practice have told her they did not report their sexual assaults); *id.* 3715:6–14 (testifying that “I had a patient the other day tell me” and recounting client’s story of why he experienced confusion about his purported assault); *id.* 3725:9–12 (testifying that “I

⁶ *Cf. Amorgianos*, 303 F.3d at 266 (discussing the *Daubert* factors to consider in assessing the reliability of proffered expert opinion testimony, including “(1) whether a theory or technique ‘can be (and has been) tested,’ (2) ‘whether the theory or technique has been subjected to peer review and publication,’ (3) a technique’s ‘known or potential rate of error,’ and ‘the existence and maintenance of standards controlling the technique’s operation,’ and (4) whether a particular technique or theory has gained ‘general acceptance’ in the relevant scientific community.” (quoting *Daubert*, 509 U.S. at 593–94)).

had a woman who was a nurse. She would have to run down the hall because he would call the nurses' station. If she didn't get there within ten seconds, he'd hang up, and then she'd get a beating later.").

In addition to unverified anecdotes she has heard from her own clinical clients, Dr. Hughes will similarly recount stories that describe acts that unidentified victims of sexual and interpersonal violence were subjected to by unknown abusers; relate how these unidentified victims described their experiences and how they processed these incidents; and report how these unidentified victims said they felt in these circumstances and after, drawing from her review of social science literature and data. *See, e.g., id.* 3714:14–3718:15 (discussing the “empirical data” “on the psychological outcome of having been raped or sexually assaulted” and describing individual responses). But under Rule 703, if the facts or data relied upon by an expert are otherwise inadmissible, the expert may not disclose them to the jury unless the court determines that their “their probative value in helping the jury evaluate the opinion *substantially* outweighs their prejudicial effect.” Fed. R. Evid. 703 (emphasis added); *see also United States v. Long*, 917 F.2d 691, 702 (2d Cir. 1990) (holding that trial court erred in permitting expert testimony that was marginally relevant, not directly related to the case, substantially more prejudicial than probative). Rule 703 “provides a presumption against disclosure to the jury of information used as the basis of an expert’s opinion and not admissible for any substantive purpose, when that information is offered by the proponent of the expert.” Fed. R. Evid. 703, 2000 Advisory Committee Note. Expert testimony that merely recites inadmissible hearsay is improper. *See, e.g., Plourde*, 190 F. Supp. 2d at 720–21 (finding expert opinion inadmissible when it “amounts to nothing more than inadmissible ‘hearsay in disguise’ under Rule 703”), *aff’d* 69 F. App’x 485,

487 (2d Cir. 2003); *see also* Charles A. Wright & Victor J. Gold, 29 FED. PRAC. & PROC. EVID. § 6273 (2d ed. April 2021 Update).

Permitting Dr. Hughes to repeat such hearsay statements to the jury would not only be improper under Rules 702 and 703, but would also violate Mr. Ray’s Sixth Amendment confrontation rights and Fifth Amendment due process rights because Dr. Hughes would inappropriately recount for the jury hearsay from unidentified clients whom Mr. Ray will not be able to cross-examine at trial. *See Dukagjini*, 326 F.3d at 58 (holding that such improper testimony in a criminal trial violates Rule 703 and the Confrontation Clause)

Because such improper hearsay is a crucial basis for Dr. Hughes’s proffered expert opinions, her testimony should be excluded at trial. To the extent Dr. Hughes is permitted to testify, she should be precluded from relying on or transmitting inadmissible hearsay statements to the jury.

2. The Court should preclude Dr. Hughes from testifying about “grooming.”

The Court should also preclude Dr. Hughes from offering any testimony about so-called “grooming” tactics because the government has not established the reliability of this opinion.

Throughout this litigation, the government has repeatedly alleged that Mr. Ray engaged in purported sexual “grooming” of an alleged victim. *See, e.g.*, Tr. 19:9–14, *United States v. Ray*, No. 20 Cr. 110 (LJL) (S.D.N.Y. Mar. 2, 2020) (“Over the course of those months the government was actively investigating and gathering evidence, including interviewing more than a dozen witnesses who described the conduct alleged in the indictment, corroborating the physical abuse, the threats of force, the sexual grooming and the humiliation.”); *id.* 20:3–5 (referencing “videos that show the interrogations and the sexual grooming”); *id.* 27:16–17 (“Video evidence from the iCloud confirms that Ray sexually groomed her.”); Tr. 24:4–5, *United*

States v. Ray, No. 20 Cr. 110 (LJL) (S.D.N.Y. Nov. 20, 2020) (referencing an alleged victim “being sexually groomed”).

In its expert disclosure, the government states that Dr. Hughes intends to offer an opinion that “the function” of certain abusive behaviors is to “maintain[] compliance” and “assure[] non-disclosure of abuse.” Gov. Expert Ltr., Ex. A at 3. This is the exact definition that Dr. Hughes uses to describe so-called “grooming.” See Tr. 3919:8–10, *United States v. Kelly*, No. 19 Cr. 286 (AMD) (E.D.N.Y. Sept. 17, 2021), Dkt. No. 250 (“Grooming are nonviolent techniques that a child offender would use in order to gain compliance of a child victim and also to assure nondisclosure of the abuse.”). Although the government does not use the word “grooming” in its disclosure, it is clear that it intends to elicit opinion testimony from Dr. Hughes about “grooming” at the trial.

The government’s failure to properly disclose Dr. Hughes’s intended opinion about “grooming” is notable because Dr. Hughes was not permitted to offer this same opinion in the *Ranieri* matter. The district court in *Ranieri* found that the government had not disclosed “any studies establishing the reliability” of Dr. Hughes’s opinions about grooming, and had not established that “Dr. Hughes’s opinion about grooming techniques [were] reliable under the *Daubert* standard.” *Ranieri*, 2019 WL 2212639, at *7. After unsuccessfully asking the court to reconsider its opinion ordering a *Daubert* hearing to “determine whether Dr. Hughes’s opinion regarding sexual abusers’ use of grooming techniques is sufficiently reliable,” *id.*, the government withdrew its offer of Dr. Hughes’s opinion on this issue, rather than subject it to the scrutinize of a hearing. See *United States v. Ranieri*, No. 18 Cr. 204 (NGG) (E.D.N.Y.), Dkt. No. 685.

The Court should not allow the government to improperly elicit Dr. Hughes's opinion about "grooming" without properly disclosing it or establishing this opinion's reliability. *See United States v. Raymond*, 700 F. Supp. 2d 142 (D. Me. 2010) (excluding prosecution expert testimony on "grooming" because it "does not satisfy the fit or reliability requirements of Federal Rule of Evidence 702 and *Daubert*"). For this reason, Dr. Hughes should be precluded from testifying about "grooming," including references to behaviors commonly associated with "grooming."

D. Dr. Hughes's proffered testimony seeks to improperly bolster the credibility of government fact witnesses and usurp the jury's factfinder role.

Even if Dr. Hughes's proffered testimony satisfied the standards of Rule 702 and *Daubert*, it should still be precluded because it seeks to improperly bolster the credibility of government fact witnesses and intrudes upon the jury's core functions.

Expert testimony that constitutes an evaluation of witness credibility, even if rooted in scientific or technical expertise, is inadmissible. *See Nimely*, 414 F.3d at 398. This is true even when an expert does not address a particular witness or piece of testimony, but speaks only to categories of witnesses or types of statements. *See, e.g., United States v. Lumpkin*, 192 F.3d 280, 289 (2d Cir. 1999); *United States v. Dugue*, 763 F. App'x 93, 96 (2d Cir. 2019) (summary order). "It is appropriate, therefore, to exclude expert testimony offered to bolster the credibility of fact witnesses." *U.S. ex rel. Anti-Discrimination Ctr. of Metro New York, Inc. v. Westchester Cty., N.Y.*, No. 06 Civ. 2860 (DLC), 2009 WL 1110577, at *2 (S.D.N.Y. Apr. 22, 2009) (citations omitted).

For example, in *Lumpkin*, the Second Circuit approved exclusion of an expert witness who would have discussed the lack of any correlation between a witness's confidence and the accuracy of his identification, since this testimony would have usurped the jury's role of

assessing witness credibility. *See* 192 F.3d at 289. Similarly, in *Dugue*, the Circuit upheld exclusion of an expert witness who would have testified generally about cooperating witnesses and the benefits they receive from the government, since the only relevance of the expert testimony would have been to impugn other witnesses' credibility. *See* 763 F. App'x at 96; *see also United States v. Paracha*, No. 03 Cr. 1197 (SHS), 2006 WL 12768, at *23–24 (S.D.N.Y. Jan. 3, 2006) (precluding proffered expert testimony about counter-interrogation techniques, since sole relevancy of the testimony would be to undermine the credibility of other witnesses).

The only possible purpose of Dr. Hughes's proffered testimony about "indoctrinat[ing] victims into a belief system that benefits the perpetrator, maintains compliance, creates dependency, assures non-disclosure of abuse, preserves dominance, and creates psychological entrapment and cognitive confusion that a victim of abuse," Gov. Expert Ltr., Ex. A at 3, would be to support the government witnesses' current narrative about their past behavior, and to bolster the credibility of these witnesses' testimony about their past conduct and statements.

Dr. Hughes's proffered testimony is also problematic in that it seeks to describe a "common" pattern of criminal behavior in a way that mirrors the government's factual claims, thereby using "expert" testimony to summarize and bolster the government's factual narrative. *See* Gov. Expert Ltr., Ex. A at 3 ("Dr. Hughes is also expected to testify about the common elements of abuse and coercive control in victimization situations."). The Second Circuit has repeatedly criticized this type of testimony. As the Circuit explained in a narcotics-related case, it is improper for the government to call an expert to testify as to how drug dealers "typically" work and offer testimony that seeks to mirror that of government fact witnesses, because such testimony "implicitly encourage[s] the jury to draw the government's preferred inferences." *United States v. Rijo*, 508 F. App'x 41, 45 (2d Cir. 2013) (summary order); *see also United*

States v. Cruz, 981 F.2d 659, 664 (2d Cir. 1992) (cautioning that expert testimony must not be used “solely to bolster the credibility of the government’s fact-witnesses by mirroring their version of events”); *United States v. Castillo*, 924 F.2d 1227, 1233–34 (2d Cir. 1991) (finding prejudicial error where court admitted “expert” testimony aimed at corroborating government witness’s account).

As the Circuit observed about the government’s use of this tactic in drug cases, an increasingly thinning line separates the legitimate use of an officer expert to translate esoteric terminology or to explicate an organization’s hierarchical structure from the illegitimate and impermissible substitution of expert opinion for factual evidence. If the officer expert strays beyond the bounds of appropriately ‘expert’ matters, . . . the officer’s testimony becomes more central to the case, more corroborative of the fact witnesses, and thus more like a summary of the facts than an aide in understanding them. . . . In such instances, it is a little too convenient that the Government has found an individual who is expert on precisely those facts that the Government must prove to secure a guilty verdict. . . .

Mejia, 545 F.3d at 190–91.

Here, the Court should not permit the government to call a purported expert witness to describe “common elements of abuse” or how victims in abusive relationships “commonly” feel or act, simply to encourage the jury to draw the government’s preferred inferences from factual evidence about Mr. Ray and the government’s witnesses. Dr. Hughes’s proffered testimony is particularly problematic in this case, where the mental states of the government’s witnesses are crucial to the ultimate questions that the jury must decide for itself—including whether the alleged victims engaged in certain conduct of their own volition or were forced to do so by Mr. Ray. Experts must not offer testimony that usurps the role of the fact finder or that takes the form of a legal conclusion. *See, e.g., Lumpkin*, 192 F.3d at 289; *Hygh v. Jacobs*, 961 F.2d 359, 363–64 (2d Cir. 1992). By offering “expert” opinion testimony that suggests there are “common elements” in all “coercive control” situations, and that purports to describe how all victims of

interpersonal violence feel or act, Dr. Hughes is “essentially instruct[ing] the jury as to an ultimate determination that [is] exclusively within its province.” *Nimely*, 414 F.3d at 398.

E. The Court should not permit Dr. Hughes to testify about sexual abuse.

The government has characterized Dr. Hughes as a “leading expert on sexual abuse.” Gov. Expert Ltr., Ex. A at 2. A significant portion of Dr. Hughes’s professional experience, research, and testifying experience relates to sexual assault and sexual violence. *Id.* at 2–3 (stating that Dr. Hughes’s proffered testimony is based on the social science literature of sexual assault, and disclosing her anticipated opinions on the use of sexual assault by perpetrators). As a result, much of her opinion testimony draws from, expressly relies upon, and extensively discusses the research and her experiences with survivors and victims of sexual violence. The government here seeks to have Dr. Hughes extrapolate from this basis of knowledge to offer opinion testimony about “common elements of abuse and coercive control in victimization situations” “across a spectrum of relationships.” *Id.* at 3. The Court, however, should preclude Dr. Hughes’s testimony on sexual assault, sexual violence, and child sexual abuse because it would not be helpful to the jury in this case and the limited probative value of any such testimony would be substantially outweighed by the risk of undue prejudice to Mr. Ray and juror confusion.

1. Dr. Hughes’s proposed testimony is not helpful because it does not fit the facts of this case.

Before admitting proffered expert testimony, the Court must determine not only that such testimony is reliable, but also that it “fits” the facts of the case and will thereby assist the jury in understanding the evidence or some factual issue in dispute. *See Daubert*, 509 U.S. at 591; Fed. R. Evid. 702. “[E]ven if the methodology used by the expert is considered to be reliable, the expert’s testimony will nevertheless fail to meet the ‘fit’ requirement and should be excluded if

the data relied upon by the expert is materially different from the data relevant to the facts of the case.” *Omeprazole*, 490 F. Supp. 2d at 401 (citing *Raskin*, 125 F.3d at 67–68).

This “fit”/helpfulness requirement is “akin to the relevance requirement of Rule 401, which is applicable to all proffered evidence, but goes beyond mere relevance because it also requires expert testimony to have a valid connection to the pertinent inquiry.” *Rezulin Prod.*, 309 F. Supp. 2d at 540 (quoting Jack B. Weinstein & Margaret A. Berger, 4 WEINSTEIN’S FEDERAL EVIDENCE § 702.03[1] (Joseph M. McLaughlin ed., 2d ed.1997) (alterations omitted)). As the Supreme Court put simply, “[e]xpert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.” *Daubert*, 509 U.S. at 591 (quotations omitted).

As the government has disclosed and as she has testified, Dr. Hughes’s specialty is in the field of “sexual abuse” and “interpersonal violence,” Gov. Expert Ltr., Ex. A at 2, which Dr. Hughes defines as including “rape, sexual assault, domestic assault, sexual harassment, physical assault.” Tr. 3920:24–3921:2, *United States v. Kelly*, No. 19 Cr. 286 (AMD) (E.D.N.Y. Sept. 17, 2021), Dkt. No. 250; Tr. 3680:9–13, *United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. No. 780. Dr. Hughes has provided general subject matter expert testimony (i.e., non-forensic evaluation testimony) in cases involving allegations of systematic sexual abuse and sexual violence, and the sexual abuse of minors. In these cases, Dr. Hughes’s testimony has addressed how survivors and victims of sexual abuse may act, think, or feel at particular times and in certain circumstances. *See* Tr. 3925:3–3927:15, *United States v. Kelly*, No. 19 Cr. 286 (AMD) (E.D.N.Y. Sept. 17, 2021), Dkt. No. 250 (testifying about how, in the context of “interpersonal violence in the form of sexual assault,” “a victim of sexual assault specifically might act”); *United States v. Kelly*, No. 19 Cr. 286 (AMD) (E.D.N.Y.), Dkt. No. 134 (describing

anticipated testimony); Tr. 3702:23–3704:20, *United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. No. 780 (testifying about how “victims cope with sexual assault”); *id.* 3706:2–3708:21 (testifying about the “coping strategies” of sexual assault victims); *id.* 3708:22–3714:12 (testifying about sexual assault victims’ denial and/or reporting of their abuse); *id.* 3714:14–3718:15 (testifying about the psychological consequences and impacts of sexual assault); *Iino v. Spalter*, 218 A.3d 152, 185–86 (Conn. App. 2019). This testimony constitutes a significant portion of Dr. Hughes’s opinions about “the common elements of abuse and coercive control in victimization situations.” Gov. Expert Ltr., Ex. A at 3.

But this case does not involve allegations of rape, sexual assault, or sexual violence. Nor does it involve allegations of sexual abuse of minors. Thus, such testimony would not be “helpful” to the jury because it does not “fit” the facts or relate to any issue in the case. *Daubert*, 509 U.S. at 591. It should be excluded. *See id.*; Fed. R. Evid. 702.

For similar reasons, the Court should not permit Dr. Hughes to offer opinions about “grooming” because, according to her definition of this phenomenon, it does not “fit” the facts of this case and would not be helpful to the jury.⁷ According to Dr. Hughes, “grooming” is the use of “nonviolent techniques that a child offender would use in order to gain compliance of a child victim and also to assure nondisclosure of the abuse.” Tr. 3919:8–10, *United States v. Kelly*, No. 19 Cr. 286 (AMD) (E.D.N.Y. Sept. 17, 2021), Dkt. No. 250. Dr. Hughes has testified that children and adolescents are “susceptible” to “grooming” tactics because “of their brain development, their cognitive maturity, their developmental maturity . . . they are not fully formed, reasoning adults.” *Id.* 3936:7–10.

⁷ As noted above, such testimony should also be precluded because the government has not demonstrated the reliability of this opinion.

There are, however, no allegations of sexual abuse of minors in this matter, nor are any of the alleged victims in this case children. To the contrary, the purported victims in this case were all college-age adults or older—including a graduate of an Ivy League university and Ivy League medical school. Dr. Hughes’s definition of “grooming” categorically excludes such “fully formed, reasoning adults.”

Because Dr. Hughes’s anticipated testimony about sexual assault, sexual violence, child sexual abuse, and other acts and circumstances not alleged here does not “fit” the facts of this case, it will not be helpful to the jury and should be precluded at trial. *See Daubert*, 509 U.S. at 591; Fed. R. Evid. 702.

2. Dr. Hughes’s proposed testimony’s probative value is substantially outweighed by the risk of undue prejudice and juror confusion.

The absence of any allegations of sexual assault or child sexual abuse in this case also underscores the minimal (if any) relevance to this case of Dr. Hughes’s testimony about abuse and control derived from her treatment and studies of sexual assault victims and child sexual abuse victims. Combined with the fact that Dr. Hughes knows nothing about the purported victims and the facts of this case, the probative value of her testimony is limited.

At the same time, there is a substantial risk that Dr. Hughes’s testimony about sexual assault, child molestation, and other child sexual abuse will confuse the issues, mislead the jury, and unduly prejudice Mr. Ray. In her prior testimony as a general subject matter expert, Dr. Hughes has discussed, and expressly relied upon her experience in connection with, infamous sexual abuse scandals that will be known to members of the jury, but which are wholly unrelated to the alleged conduct at issue in this case. For example, in her testimony, Dr. Hughes repeatedly references child sexual abuse in the Boy Scouts of America, the USA Gymnastics sexual abuse scandal, the sexual abuse of minors by members of the Catholic Church, and other notorious

scandals, and relies on her understanding of or experience with these cases as a basis for her expert opinions.⁸

Despite the fact that there is no sexual abuse or child sexual abuse at issue here, Dr. Hughes's testimony and repeated references to these scandals would suggest that Mr. Ray is associated with such acts. This testimony would improperly inflame the jury by describing patterns of abuse perpetrated by other people (not Mr. Ray), encourage the jury to hold Mr. Ray responsible for these other people and their actions, and motivate the jury to find Mr. Ray guilty on an improper basis. As the Advisory Committee warned, such testimony is precisely the type of evidence that would create "an undue tendency to suggest decision on an improper basis, commonly, though not necessarily, an emotional one." Fed. R. Evid. 403, Advisory Committee Note; *see also* 2 WEINSTEIN'S FEDERAL EVIDENCE § 403.04[1][b] ("Unfairness may be

⁸ See, e.g., Tr. 3919:8–19, *United States v. Kelly*, No. 19 Cr. 286 (AMD) (E.D.N.Y. Sept. 17, 2021), Dkt. No. 250 ("So, grooming are nonviolent techniques that a child offender would use in order to gain compliance of a child victim and also to assure nondisclosure of the abuse. . . . The child offender would use that and exploit that in order to get access to the child. If it was a Boy Scout leader, it will be I can help you do your Eagle Scout. If it's a gymnastics coach, I will help you get to the Olympics. They will use the vulnerabilities or the interest of the child in order to perpetrate the abuse."); *id.* 3938:7–14 ("Q Have you been involved in cases where the abuse took place in front of others, and the others took no action to assist? A Regrettably, all the time. We just saw in USA Gymnastics, the gymnastics -- because everybody knew about this and nobody did anything. I see that all the time in the Boy Scout cases that I've worked with, in the clergy cases, and other youth sports."); Tr. 3700:2–16, *United States v. Raniere*, No. 18 Cr. 204 (NGG) (E.D.N.Y. June 6, 2019), Dkt. No. 780 ("Q You mentioned peer groups. Do you see these sort of concerns when victims are part of larger communities or institutions? A That's correct. I've seen this in the cases that I've worked on with the Boy Scouts of America, where sometimes in telling about the abuse, then sort of the whole group is going to come down. And, of course, the issue of fearing being believed that somebody who's in high esteem, your Scout Master, could do this to you. I've seen this in the enormous work I've done in the Catholic church and the clergy abuse, that how can I, the victim, be believed and take down a priest? How is that going to work? Now everybody who is involved in my school or my religious instruction or my church and community, that is going to have a ripple effect on that."); *id.* 3702:13–15 ("How can a priest abuse me? How can my Scout leader abuse me? How can my coach abuse me?").

found in any form of evidence that may cause a jury to base its decision on something other than the established propositions in the case. . . . Prejudice is also unfair if the evidence was designed to elicit a response from the jurors that is not justified by the evidence.”). The minimal relevance of Dr. Hughes’s testimony is far outweighed by the significant risks it would introduce.

* * *

Because Dr. Hughes’s anticipated testimony about sexual assault, sexual violence, child sexual abuse, and other acts and circumstances not alleged here does not “fit” the facts of this case and would introduce a substantial risk of unfair prejudice, confusing the issues, and misleading the jury, such testimony should be precluded at trial. *See Daubert*, 509 U.S. at 591; Fed. R. Evid. 702; Fed R. Evid. 403. To the extent any such testimony is permitted, the Court should evaluate it pretrial at a *Daubert* hearing at which the government must establish the necessary connection to the facts of this case and unduly prejudicial testimony may be excluded.

F. The government has waived the opportunity to offer expert testimony regarding any of the purported victims.

Finally, the government’s disclosure letter states that it “does not *presently* intend to offer Dr. Hughes’s testimony regarding any specific victim.” Gov. Expert Ltr., Ex. A at 3 (emphasis added). The government does not identify any alleged victim it may ask Dr. Hughes to offer an opinion about in the future, nor what that opinion would be. The government has waived the opportunity to introduce at trial any expert testimony about the alleged victims. To the extent the government wanted to offer an expert opinion on any of the purported victims, that time has passed under the Court’s scheduling orders. The scope of Dr. Hughes’s testimony may not now or in the future expand beyond the topics disclosed in the government’s November 15, 2021 notice. *See United States v. Ulbricht*, 858 F.3d 71, 82 (2d Cir. 2017) (affirming district court’s exclusion of proposed experts because “[n]ot only were the disclosures late, more importantly,

they were plainly inadequate. Both disclosures merely listed general and in some cases extremely broad topics on which the experts might opine.”).

III. The Testimony of the Government’s Toxicologist Expert, Richard Pleus, Should Be Excluded or Limited.

The government’s expert notice states that Richard Pleus, Ph.D., is “expected to testify” that “there are no biomarkers in [Mr. Ray’s] Medical Records to indicate Lawrence Ray was exposed to toxins or toxicants – including mercury, estrogen compounds, cleaning fluids, thallium, copper, ricin, cyanide, organophosphates, or arsenic – at doses that would cause the health effects reported by Mr. Ray.” Gov. Expert Ltr., Ex. A at 5. He will “testify about diagnoses and other results reflected in the Medical Records that may have contributed to Mr. Ray’s reported neurological effects and alleged nerve damage.” *Id.*

Dr. Pleus has a Ph.D., but is not a medical doctor. He has not met nor examined Mr. Ray. Nonetheless, he concludes that Mr. Ray “has not suffered any health impairment from intentional poisoning.” Gov. Expert Ltr., Ex. A at App’x E at 7.

First, this Court should hold that Dr. Pleus, who is not a medical doctor, is not qualified to testify about diagnoses reached by other doctors. There is no indication in the government’s disclosure letter that Dr. Pleus is qualified to make or interpret medical diagnoses. His testimony related to Mr. Ray’s medical diagnosis should, therefore, be excluded.⁹ *See, e.g., Morgan v.*

⁹ This type of testimony should also be excluded for two additional reasons: 1. It would violate Mr. Ray’s right to confront the witnesses against him; and, 2. It is hearsay. The government has not identified any hearsay exception that would allow Dr. Pleus to testify as to any diagnosis made by a non-testifying doctor and the defense is not aware of any. The defense reserves the right to object more fully on these grounds in the motions in limine in the event the current motion is denied. We also reserve the right to make additional challenges during the motion in limine briefing to Dr. Pleus’s testimony under the Federal Rules of Evidence, Rules 401 and 403.

Girgis, No. 07 Civ. 1960 (WCC), 2008 WL 2115250, at *5 (S.D.N.Y. May 16, 2008) (precluding non-medical doctor from opining on whether an accident caused or contributed to plaintiff's injuries); *Bennett v. Target Corp.*, No. 16 Civ. 5816 (ADS), 2019 WL 7556361, at *7 (E.D.N.Y. Jan. 2, 2019) (collecting cases from the Second Circuit in which preferred experts with no medical training are precluded from offering opinions based on medical records); *see also*, Point II, *supra* (collecting cases in which courts in the Second Circuit excluded witnesses who were generally qualified, but not to offer the specific opinions proffered).

Second, Dr. Pleus plans to testify to the broad conclusion that Mr. Ray “has not suffered any health impairment from intentional poisoning” based solely on a review of a smattering of medical records without actually meeting or examining Mr. Ray. Gov. Expert Ltr., Ex. A at App’x E at 7. Because Dr. Pleus has not examined Mr. Ray and has only a selection of his medical records, his testimony is not based on sufficient facts or data under Rule 702(b), and should be excluded.

Dr. Pleus’s own report makes the gaps in his information clear. He writes that “the potential for adverse health effects [from exposure to mercury and other agents] is highly dependent on the exposure scenarios, what happens to the compound in the body, and whether the individual is more sensitive than average.” *Id.* But Dr. Pleus did not have that type of information about Mr. Ray. He also writes that a “toxicologist must” know the “route of administration and the duration and frequency of exposure.” *Id.* But Dr. Pleus did not have this type of information either. And, Dr. Pleus admits that the “biological testing results” he relied on were only “available for some of the alleged compounds.” *Id.* Indeed, testing results were limited to only three of the nine compounds about which Dr. Pleus plans to testify.

The testing results that Dr. Pleus did review were also temporally limited, providing information about only small snapshots in time. Dr. Pleus reviewed only five blood tests for mercury, none of which occurred in “2013, when the alleged poisoning occurred.” Gov. Expert Ltr., Ex. A at App’x E at 2. He reviewed only two days of arsenic testing in the same month in 2014, and one day of thallium testing. *Id.* at 4. Dr. Pleus had no other testing results. Despite this, Dr. Pleus’s planned testimony—and his broad conclusion that Mr. Ray has not suffered any health impairment from intentional poisoning”—does not appear at all limited to the time range in the available data.

Third, as with the testimony of Dr. Hughes, *see*, Point II, *supra*, Dr. Pleus’s testimony is only relevant to improperly bolster the credibility of the government’s witnesses. The defense expects at least one of the government’s witnesses to testify that she once believed she had poisoned Mr. Ray, but now does not believe that was the case. Dr. Pleus’s conclusion that Mr. Ray was not poisoned appears designed solely to bolster the credibility of this fact witness. In general, “expert testimony which does nothing but vouch for the credibility of another witness encroaches upon the jury’s vital and exclusive function to make credibility determinations, and therefore does not “assist the trier of fact” as required by Rule 702.” *United States v. Charley*, 189 F.3d 1251, 1267 (10th Cir. 1999); *see also* Point II (citing, *inter alia*, *Lumpkin*, 192 F.3d 280).

Finally, Dr. Pleus cannot draw any reliable conclusion from examining blood tests and medical records about whether Mr. Ray’s elevated mercury levels were the result of someone “intentional[ly]” poisoning him, as opposed to Mr. Ray being inadvertently exposed to the toxin. A conclusion about the mental state of a third-party has nothing to do with Mr. Ray’s medical

records. Instead, whether someone has a particular intent is a factual question for a jury. Dr. Pleus is a toxicologist; he is not qualified to determine the mental state of anyone in this case.

Based on the information provided, the government has not met its burden in showing that Dr. Pleus's broad conclusions about Mr. Ray's health and whether he was poisoned are supported by adequate data, or that his testimony would assist the trier of fact. For these reasons, his testimony should be excluded, or limited.

IV. The Government's Forensic Examiner, Stephen Flatley, Should Be Precluded from Testifying as An Expert.

The government provided notice "out of an abundance of caution" that it intends to call FBI Agent Stephen Flatley as a lay witness. Gov. Expert Ltr., Ex. A at 1–2. Agent Flatley is expected to testify about the extraction of certain electronic devices and the imaging of digital material in connection with this case. Gov. Supplemental Notice, Ex. B. The government's notice explicitly states that Agent Flatley will not offer opinions, and, as such, does not provide Mr. Flatley's opinions or bases for those opinions. Gov. Expert Ltr., Ex. A at 1–2; Gov. Supplemental Notice, Ex. B.

The Court should preclude Agent Flatley from testifying as an expert. While Agent Flatley has testified as an expert in several cases cited in the government's notice, *see, e.g., United States v. Healey*, 11 Cr. 132 (PAE) (S.D.N.Y.); *United States v. Valle*, 12 Cr. 847 (PGG) (S.D.N.Y.); *United States v. Hirst*, 15 Cr. 643 (PKC) (S.D.N.Y.); *United States v. DiTomasso*, 14 Cr. 160 (SAS) (S.D.N.Y.), he has not been proffered as an expert witness in this matter. The government's notice is woefully deficient under *Daubert* and Rule 702. In fact, the government explicitly states that it does not believe Agent Flatley's testimony is governed by Rule 702. Gov. Expert Ltr., Ex. A at 1–2. The government cannot simply name Agent Flatley in its disclosures to

circumvent a later objection that Agent Flatley has offered opinion testimony that exceeds the boundaries of a lay witness under Rule 701 of the Federal Rules of Evidence.

Indeed, the Second Circuit frequently cautions against the same person, especially a law enforcement official, testifying as both a fact witness and an expert witness. *See, e.g., Dukagjini*, 326 F.3d at 53 (agreeing that “the use of the case agent as an expert increases the likelihood that inadmissible and prejudicial testimony will be proffered”); *United States v. Barrow*, 400 F.3d 109, 124 (2d Cir. 2005); *Cruz*, 363 F.3d at 194–95. In *Cruz*, the Second Circuit warned, “[d]istrict courts must be especially vigilant in evaluating the admissibility of expert testimony where, as here, a law enforcement official is called on to testify as a fact witness but also functions as an expert for the government.” 363 F.3d 187 at 194. Permitting Agent Flatley to testify as an expert in forensic extractions of electronic devices risks conferring on him an “aura of special reliability and trustworthiness,” which “poses a particular risk of prejudice because the jury may infer that the agent’s opinion about the criminal nature of the defendant’s activity is based on knowledge of the defendant beyond the evidence at trial.” *Id.* at 194–95 (internal quotation marks and citations omitted). For these reasons, Agent Flatley should be precluded from testifying as an expert at trial.

Finally, the Court should preclude Agent Flatley from testifying as a lay witness about the substance of the data and whether the extraction reports demonstrate that Mr. Ray downloaded, viewed, or sent any of the materials at issue. The government’s notice does not designate an expert to testify about the substance of the data extracted from the electronic devices. Testimony of this type would constitute impermissible opinion testimony from a lay witness and is beyond the scope of the government’s notice. *See United States v. Ganier*, 468 F.3d 920, 926–27 (6th Cir. 2006) (precluding testimony from a lay witness regarding defendant’s

computer searches); *United States v. Lopez*, No. S1 18-cr-0006 (DLC), 2019 WL 1570818, at *6 (S.D.N.Y. Apr. 11, 2019) (precluding testimony beyond the scope of expert disclosures).

CONCLUSION

For these reasons, the Court should exclude the testimony of the government's proffered expert witnesses. In the alternative, the Court should hold a *Daubert* hearing at which the government must establish the admissibility of each its proffered expert opinions.

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Respectfully submitted,

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